

PALEONTOLOGY.—Notes on the genus *Breviarca*.¹ LLOYD WILLIAM STEPHENSON, U. S. Geological Survey.

The name *Breviarca* was introduced by Conrad² in 1872 as a subgenus of *Trigonarca* Conrad (not *Trigonoarca*). He did not specify a genotype, but named two examples, *Trigonarca perovalis* Conrad, from the Snow Hill member of the Black Creek formation of North Carolina, and *Trigonarca saffordi* Gabb. The former species was later erroneously described by Conrad³ under the name *Trigonarca (Breviarca) carolinensis*. The type of the true *Trigonarca saffordi* (Gabb)⁴ came from the Midway group (Eocene), Hardeman County, Tenn., and is now known to be a *Cucullaea*;⁵ Gabb originally assigned it to *Arca*.

Meek⁶ in 1876, treated *Breviarca* as a subgenus of *Trigonarca* and named *Trigonarca perovalis* Conrad as an example. The first author who definitely designated a genotype for *Breviarca* was Stewart⁷ who in 1930 selected *Trigonarca saffordi* (Gabb) Conrad, the second example cited by Conrad. Emphasis is to be placed on the fact that Stewart's selection pertained to the specimen figured by Conrad (his pl. 2, fig. 3), which, as shown below, was a specimen identified as *saffordi* from the Woodbury clay of the Matawan group, Haddonfield, New Jersey, and was not from Hardeman County, Tenn.

Whitfield,⁸ in 1885 treated *Breviarca* as a genus and accepted the specific name *saffordi* for the New Jersey material. He says, "The specimen which I have figured on plate 12, figs. 11 and 12, appears to be the same with that used by Mr. Conrad for generic figures in 1872, and I have made the figures as accurately as it is possible to measure the specimen."

The specimen to which Whitfield refers is a right valve preserved in the Academy of Natural Sciences of Philadelphia, and is accompanied in the same tray by 13 other smaller shells, 9 left valves and 4 right valves; the lot is from Haddonfield and bears the number 13141. This lot has been kindly lent to me by the authorities of the Academy. I

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² CONRAD, T. A. Acad. Nat. Sci. Philadelphia, Proc. 24: 55, pl. 2, figs. 3, 4. 1872.

³ CONRAD, T. A. Rept. Geol. Survey North Carolina. 1: App. A: 3, pl. 1, fig. 4. 1875. See also STEPHENSON, L. W., North Carolina Geol. and Econ. Survey. 5: 110. 1923.

⁴ GABB, WM. M. Acad. Nat. Sci. Philadelphia, Proc., 2d ser., 4: 397, pl. 68, fig. 38 (not fig. 37). 1860.

⁵ HARRIS, G. D. Bull. Amer. Paleontology. 1: no. 4: 51-53, pl. 3, fig. 11; pl. 4, figs. 1, 2. 1896.

⁶ MEEK, F. B. Rept. U. S. Geol. Survey Terr. 9: 90-91. 1876.

⁷ STEWART, RALPH. Acad. Nat. Sci. Philadelphia Special Publication 3: 86. 1930.

⁸ WHITFIELD, R. P. U. S. Geol. Survey Mon. 9: 87-88, pl. 12, figs. 11, 12. 1885.

have carefully compared the large right valve with the figures given by both Conrad and Whitfield, and am convinced it is the specimen figured by them; it is marked with a green and a red diamond. Further evidence is afforded by two card labels in Conrad's handwriting, to which specimens had been glued, one bearing the name *Trigonalca saffordi* Gabb, and the other *Trigonalca (Arca) saffordi* Gabb.

It is clear from the foregoing facts that the Haddonfield specimen, which must be accepted as the genotype of *Breviarca*, was incorrectly referred to Gabb's species *saffordi* and that it is in need of a new name. I therefore propose the name *Breviarca haddonfieldensis*, and designate as holotype the large right valve from Haddonfield, figured by Conrad in Academy of Natural Science Philadelphia Proceedings, vol. 24, p. 55, pl. 2, fig. 3, 1872, and by Whitfield in United States Geological Survey Monograph, vol. 9, p. 87, pl. 12, figs. 11, 12, 1885. The specimen is adequately described by Whitfield. Twelve of the 13 shells accompanying the holotype (9 left and 3 right valves) belong to the same species as the figured specimen. The thirteenth shell, a right valve, differs from the others in form, and resembles *Breviarca umbonata* (Conrad), from the Snow Hill member of the Black Creek formation of North Carolina; this shell has been placed in a separate vial.

It follows that the genotype of *Breviarca* is *Trigonalca saffordi* (Gabb) Conrad (= *Breviarca haddonfieldensis* Stephenson), and not *Cucullaea saffordi* (Gabb).

In 1923 I referred Conrad's species *Trigonalca (Breviarca) perovalis* and five other associated species, to the genus *Striarca*, which is based on *Arca centenaria* Say, a species from the Miocene of Maryland. The principal common character which was thought to indicate this congeneric relationship, was the transversely striated triangular ligamental area. After further consideration I am now of the opinion that, although the Miocene and Cretaceous species do possess this feature in common, and are related, there are sufficient differences in form and ornamentation to warrant retaining Conrad's *Breviarca* for the Cretaceous species.

BOTANY.—*The status of Pellaea compacta (Davenp.) Maxon, and a probationary method in systematic botany.*¹ JOSEPH EWAN, University of California. (Communicated by W. L. JEPSON.)

There occurs at elevations of 6500 to 8800 feet in the mountains of southern California an endemic fern whose systematic status has vari-

¹ Received April 2, 1935.